

CURRICULUM VITAE

Vikas Kumar Das

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Research Interest

River Hydraulics, Riverbank Erosion, Cohesive Erosion, Turbulent Flow, Experimental Fluid Mechanics, Bridge Pier Scouring, Fractal Theory, Chaos and Complex Network Structure.

Current Position

Assistant Professor

May 2023 – Present

Department of Earth & Atmospheric sciences,
NIT Rourkela,
Odisha, India.

Academic Experience

Adjunct Faculty

Feb 2023 – Apr 2023

Department of Earth Sciences
Indian Institute of Engineering Science and Technology, Shibpur
Howrah, West Bengal, India

Postdoctoral Research Associate

Jan 2021 – Jan 2023

Department of Civil Engineering, Indian Institute of Technology Bombay.
❖ Mentor: Prof. Bellie Sivakumar

Senior Research Fellow (Project assistant under DST-SERB Project)

Jan 2019 – Mar 2020

Department of Aerospace Engineering and Applied Mechanics
Indian Institute of Engineering Science and Technology, Shibpur,
Howrah, West Bengal, India
❖ Mentor: Prof. Koustuv Debnath

Junior Research Fellow (Project assistant under DST-SERB Project)

Jan 2017 – Dec 2018

Department of Aerospace Engineering and Applied Mechanics
Indian Institute of Engineering Science and Technology, Shibpur,
Howrah, West Bengal, India
❖ Mentor: Prof. Koustuv Debnath

Education

Ph.D. in Geology

Nov 2016 – Feb 2021

Department of Geological Sciences, Jadavpur University, Kolkata, India

- ❖ Thesis title: Flume Study on Cohesive River Bank Erosion: Process and Mechanisms
- ❖ Mentors: 1. Dr. Susanta Chaudhuri of the Department of Geological Sciences, Jadavpur University.
2. Prof. Koustuv Debnath of the Aerospace engineering and Applied Mechanics, IEST, Shibpur

M.Sc. in Applied Geology

Aug 2014 – May 2016

Department of Geological Sciences, Jadavpur University, Kolkata, India

❖ Grade: First Class

B.Sc. in Geological Sciences

Aug 2011 – May 2014

Department of Geological Sciences, Jadavpur University, Kolkata, India

❖ Grade: First Class

Teaching experience

1. **2023:** Ore Geology and Fuel Geology (For Mining Engineers) – UG – 6th Semester; Palaeontology and Mass Extinction; Paleontology Practical and Borehole Geology – PG – 4th Semester; Life through ages (Open Elective) – PG – 2nd Semester
2. **2019:** Geohydrology practical class – Geological Sciences – UG – 6th semester; Earth & Climate practical class – Geological Sciences – UG – 6th semester; Engineering geology practical class – Civil Engineering – 4th Semester.
3. **2018:** Geohydrology practical class – Geological Sciences – UG – 6th semester; Earth & Climate practical class – Geological Sciences – UG – 6th semester; Engineering geology practical class – Civil Engineering – 4th Semester.
4. **2017:** Engineering geology practical class – Civil Engineering – 4th Semester.

Awards and Honours

- ❖ DST INSPIRE Faculty Fellowship 2023
- ❖ International Travel Grant for attending conferences abroad from (Rashtriya Uchchatar Shiksha Abhiyan) RUSA 2.0 for attending conference at Italy 2019
- ❖ Best paper award in 24th Hydro 2019- International Conference, organized by the Department of Civil Engineering, University college of Engineering, Osmania University, Hyderabad, India in association with the Indian Society for Hydraulics (ISH) held during 18-20, December 2019. 2019
- ❖ Outstanding paper award in 25th State Science & Technology Congress, Department of Higher Education, Science & Technology and Biotechnology, Government of West Bengal, March 2018. 2018
- ❖ Outstanding paper award in 2nd Regional Science & Technology Congress, Department of Higher Education, Science & Technology and Biotechnology, Government of West Bengal, December 2017 2017
- ❖ Qualification in NET 2017
- ❖ Qualification in GATE 2016

Journal Publications (published)

Google Scholar: <https://scholar.google.co.in/citations?user=F5IzfGEAAAAJ&hl=en>

Scopus Author Identifier: 57203814805

Orcid ID: <https://orcid.org/0000-0002-9214-5586>

Scopus: Citations: 120 h-index: 7
Google Scholar: Citations: 173 h-index: 7 I-10-index: 7

Journal Articles 25 Book Chapters 1 Conferences 14

Journal articles (♣ Denotes Equal contribution)

2023

1. **Das, V.K.**, Debnath, K. and Sivakumar, B., 2022. On the evolution of turbulent characteristics of an eroding cohesive riverbank. *Stochastic Environmental Research and Risk Assessment*, pp.1-23. **I.F- 3.821**

2022

2. Singh, S.K. ♣, **Das, V.K.** ♣, Chaudhuri, S. and Debnath, K., 2022. Spatial variation of mean flow and turbulence characteristics within channel contraction—an experimental approach. *ISH Journal of Hydraulic Engineering*, pp.1-10.
3. **Das, V.K.**, Debnath, K. and Sivakumar, B., 2022. Does turbulence show fractal structure within a dynamic undercut of an alluvial riverbank?. *Chaos, Solitons & Fractals*, 157, p.111998. **I.F- 9.992**
4. **Das, V.K.**, Chaudhuri, S., Barman, K., Roy, S. and Debnath, K., 2022. Pier scours in fine-grained non-cohesive sediment and downstream siltation, an experimental approach. *Physical Geography*, 43(3), pp.365-382. **I.F- 2.075**
5. Hansda, S. ♣, **Das, V.K.** ♣ and Debnath, K., 2022. Temporal modulation of turbulence structure over progressive erosion boundary under influence of wave current combined flow. *Environmental Fluid Mechanics*, pp.1-31. **I.F- 2.618**
6. Sarkar, S., Roy, S., Barman, K., **Das, V.K.** and Debnath, K., 2022. Turbulence effect on the mechanics of ripple formation under regular wave. *Journal of Earth System Science*, 131(2), pp.1-16. **I.F- 1.912**
7. Roy, S ♣, **Das, V.K.** ♣, Barman, K., Mondal, B. and Debnath, K., 2022. Coupled dynamics of river bank undercut depth increment due to random velocity field. *Environmental Engineering & Management Journal (EEMJ)*, 21(3). **I.F- 0.916**
8. Chaudhuri, S. ♣, **Das, V.K.** ♣, Debnath, K. and Hansda, S., 2022. Embankment breaching at Indian Sundarban—an assessment on altered primary sediment index properties and fluvial flow parameters. *ISH Journal of Hydraulic Engineering*, 28(4), pp.449-460.
9. Sarkar, S., Debnath, K., **Das, V.K.** and Mazumder, B.S., 2022. Formation and migration of ripple pattern due to pure wave. *ISH Journal of Hydraulic Engineering*, 28(1), pp.21-33.

2021

10. **Das, V.K.**, Hansda, S., Debnath, K. and Chaudhuri, S., 2021. Riverbank stabilization based on the modulation

of the near bank turbulence scales. *Environment, Development and Sustainability*, 23(10), pp.15290-15313. **IF- 4.080**

11. **Das, V.K.**, Debnath, K., Roy, S., Barman, K., Hansda, S. and Mazumder, B.S., 2021. Effect of turbulent structures on the riverbank erosion due to tidal influence: A case study from the Rupnarayan River, eastern India. *Journal of Earth System Science*, 130(2), pp.1-18. **IF- 1.912**
12. **Das, V.K.**, Hansda, S., Debnath, K., Chaudhuri, S. and Mazumder, B.S., 2021. Assessing the hydraulic performance of bamboo logs in riverbank stabilization: case study of Sundarbans, India. *Hydrological Sciences Journal*, 66(1), pp.134-151. **IF- 3.942**
13. Palmajumder, M., Chaudhuri, S., **Das, V.K.** and Nag, S.K., 2021. An appraisal of geohydrological status and assessment of groundwater quality of Indpur Block, Bankura District, West Bengal, India. *Applied Water Science*, 11(3), pp.1-21. **IF- 5.411**
14. Sarkar, S. [✉], **Das, V.K.** [✉], Barman, K. and Debnath, K., 2021. Effect of the Wave on Sediment Suspension and the Morphological Pattern of Ripple Formation. *Ocean Science Journal*, 56(2), pp.207-223. **IF- 1.053**

2020

15. **Das, V.K.**, Barman, K., Roy, S., Chaudhuri, S. and Debnath, K., 2020. Near bank turbulence of a river bend with self-similar morphological structures. *Catena*, 191, p.104582. **IF- 6.367**
16. **Das, V.K.**, Roy, S., Barman, K., Chaudhuri, S. and Debnath, K., 2020. Cohesive river bank erosion mechanism under wave-current interaction: A flume study. *Journal of Earth System Science*, 129(1), pp.1-20. **IF- 1.912**
17. Barman, K., Raushan, P.K., **Das, V.K.**, Roy, S., Hansda, S. and Debnath, K., 2020. Turbulent flow characteristics in the eroded region of the side-wall bank. *Environ. Eng. Manag. J*, 19(8). **IF- 0.916**
18. Roy, S. [✉], Barman, K., **Das, V.K.** [✉], Debnath, K. and Mazumder, B.S., 2020. Experimental investigation of undercut mechanisms of river bank erosion based on 3D turbulence characteristics. *Environmental Processes*, 7(1), pp.341-366.
19. Palmajumder, M., Chaudhuri, S., **Das, V.K.** and Nag, S.K., 2020. Hydrogeochemistry and overall appraisal of groundwater status of Taldangra block, Bankura District, West Bengal, India. *Asian Journal of Water, Environment and Pollution*, 17(4), pp.37-46.

2019

20. **Das, V.K.**, Roy, S., Barman, K., Debnath, K., Chaudhuri, S. and Mazumder, B.S., 2019. Investigations on undercutting processes of cohesive river bank. *Engineering Geology*, 252, pp.110-124. **IF- 6.902**
21. **Das, V.K.**, Roy, S., Barman, K., Chaudhuri, S. and Debnath, K., 2019. Study of clay-sand network structures and its effect on river bank erosion: an experimental approach. *Environmental Earth Sciences*, 78(20), pp.1-18. **IF- 3.119**
22. Barman, K. [✉], Roy, S., **Das, V.K.** [✉] and Debnath, K., 2019. Effect of clay fraction on turbulence characteristics of flow near an eroded bank. *Journal of hydrology*, 571, pp.87-102. **IF- 6.708**
23. Roy, S. [✉], **Das, V.K.** [✉] and Debnath, K., 2019. Characteristics of intermittent turbulent structures for river bank undercut depth increment. *Catena*, 172, pp.356-368. **IF- 3.367**
24. Roy, S., Ghoshal, S., Barman, K., **Das, V.K.**, Ghosh, S. and Debnath, K., 2019. Modulation of the recirculation region due to magneto hydrodynamic flow. *Engineering Science and Technology, an International Journal*, 22(1), pp.282-293. **IF- 5.155**

25. Palmajumder, M., Chaudhuri, S., **Das, V.K.**, Das, A., and Nag, S.K., 2019. Hydrogeochemical Investigation and Qualitative Appraisal of Groundwater of Taldangra Block, Bankura District, West Bengal, India. INDIAN GROUND WATER, Vol- XIII, 101-125.

Book Chapters

- **Das, V.K.**, Debnath, K. and Chaudhuri, S., 2022. Stabilization of Manmade Embankments at Indian Sundarbans Estuary Through Turbulence Control at Flow-Sediment Interface: Field Survey and Flume Experimentation. In River Dynamics and Flood Hazards: Studies on Risk and Mitigation (pp. 127-147). Singapore: Springer Nature Singapore.

Abstracts in Conferences

Sl. No.	Title of the Invited Lecture/Paper presented	Title of Conference/ Seminar etc.	Organised by	Date of Presentation	Level	Authors
1.	Fractals in Turbulence Flow Within a Dynamic Undercut of an Alluvial Riverbank	19th Annual Meeting of the Asia Oceania Geosciences Society	Asia Oceania Geosciences Society	1 st -5 th August, 2022	International (Online)	Vikas Kumar Das , Koustuv Debnath, Bellie Sivakumar
2.	“Embankment breaching at Indian Sundarban – an assessment on altered soil index properties and fluvial flow parameters”	INTERNATIONAL CONFERENCE on Recent Advances in Civil Engineering for Sustainable Development (RACESD- 2021)	Department of Civil Engineering, Maulana Azad National Institute of Technology, Bhopal in online mode	February, 2021	International (within India)	Vikas Kumar Das , Susanta Chaudhuri, Koustuv Debnath.
3.	Hydrogeological Status and Assessment of Groundwater Quality of Indpur Block, Bankura District, West Bengal, India – the Present Scenario	4th international Conference(online) on Mother Earth: Nurture and Nature, to have a Better Future,	Department of Environmental Sciences, The University of Burdwan, West Bengal, India	27th -29th August 2020	International (within India)	Moumita Palmajumder, Susanta Chaudhuri, Vikas Kumar Das
4.	Effect of clay- sand mixture on river bank morphology and erosion,	34th IAS Meeting of Sedimentology - International Conference on Sedimentology to face societal challenges on risk, resources and record of the past	Department of Earth Sciences of Sapienza University, Rome, Italy	September 2019	International (Abroad)	Vikas Kumar Das , Susanta Chaudhuri, Koustuv Debnath.

5.	Scouring and Downstream Bed Deformation due to Obstruction of Stream Flow - an Experimental Study with Finegrained Non- cohesive Sediment Bed.	34th IAS Meeting of Sedimentology - International Conference on Sedimentology to face societal challenges on risk, resources and record of the past.	Department of Earth Sciences of Sapienza University, Rome, Italy	September 2019	International (Abroad)	Susanta Chaudhuri, Vikas Kumar Das , Koustuv Debnath.
6.	Erosion Mechanisms and Modification of Morphological Pattern of Meandering River Bank - A Case Study at the Middle Flow Regime of the Hooghly River near Nawadip, West Bengal, India.	Hydro 2019 International Hydraulics, Water Resources and Coastal Engineering	Osmania University, Hyderabad.	December 2019	International (within India)	Vikas Kumar Das , Susanta Chaudhuri, Koustuv Debnath.
7.	Comparison of Scour Mechanisms and Downstream Bed Modification around Circular Pier for Different Stream Bed Characteristics – An Experimental Approach	Hydro 2019 International Hydraulics, Water Resources and Coastal Engineering	Osmania University, Hyderabad.	December 2019	International (within India)	Susanta Chaudhuri, Vikas Kumar Das , Koustuv Debnath.
8.	Hydro Geochemistry and an Overall Appraisal of Ground water Status of Taldangra Block, Bankura District, West Bengal, India	Hydro 2019 International Hydraulics, Water Resources and Coastal Engineering	Osmania University, Hyderabad.	December 2019	International (within India)	Moumita Palmajumder, Susanta Chaudhuri, Vikas Kumar Das
9.	Control of Geology and GeoMorphology on Groundwater Scenario of Indpur Block, Bankura District, West Bengal, India- A Pre-monsoon Appraisal.”	Hydro 2019 International Hydraulics, Water Resources and Coastal Engineering	Osmania University, Hyderabad.	December 2019	International (within India)	Lipi Tuti, Moumita Palmajumder, Susanta Chaudhuri, Vikas Kumar Das
10.	Post-monsoon Geo-Hydrological Scenario of Indpurand Taldangra Block, Bankura District, West Bengal, India - a Comparative Study	26th West Bengal State Science & Technology Congress, Department of Higher Education, Science & Technology and Biotechnology, Government of West Bengal	Science City	March 2019	State	Moumita Palmajumder, Susanta Chaudhuri, Vikas Kumar Das , Avik Das

11.	Study on Erosion and Undercut of Cohesive River Bank- an Experimental Approach	Hydro 2018 International Hydraulics, Water Resources and Coastal Engineering	NIT, Patna	December 2018	International (within India)	Vikas Kumar Das, Susanta Chaudhuri, Koustuv Debnath.
12.	Post-monsoon Geo-Hydrological Scenario of Indpurand Taldangra Block, Bankura Disrtict, West Bengal, India - a Comparative Study	3rd Regional Science & Technology Congress, Department of Higher Education, Science & Technology and Biotechnology, Government of West Bengal	Bidhannagar College	December 2018	University	Moumita Palmajumder, Susanta Chaudhuri, Vikas Kumar Das, Avik Das
13.	Study on Bridge Pier Scour and Downstream Siltation- An Experimental Approach	25th State Science & Technology Congress, Department of Higher Education, Science & Technology and Biotechnology, Government of West Bengal	Science City	March 2018	State	Vikas Kumar Das, Susanta Chaudhuri, Koustuv Debnath.
14.	Study on Bridge Pier Scour and Downstream Siltation- An Experimental Approach	2 nd Regional Science & Technology Congress, Department of Higher Education, Science & Technology and Biotechnology, Government of West Bengal	Kalayani University	December 2017	University	Vikas Kumar Das, Susanta Chaudhuri, Koustuv Debnath.

Competence in Computer Application:

C; Corel Draw; ERDAS; Grapher; HTML coding (web page designing); Java (Blue J); Matlab; Microsoft office; Photoshop; Python (beginner); Surfer; TNT Mips; Voxler; Win ADV

Important Services Roles

Reviewer Assignments

- ❖ Environmental Fluid Mechanics
- ❖ ISH Journal of Hydraulic Engineering

Membership

- ❖ Indian Association of Sedimentologists